was taken ill. He lingered a few days, unconscious for the most part, but whenever he revived, his mind was perfectly clear. He fell quietly asleep, Nov. 18. 1887.

This life shows us a man endowed with a rare combination of qualities, both moral and intellectual. Simple and kindly as a child, indifferent to luxury—his one extravagance was in the matter of writing material—brave and patient in suffering, and afraid of nothing but idleness, of genuine piety and purity of life, he might almost have passed for a saint had he not been so remarkable as a scholar. Possessed of unusual independence, originality and versatility of mind, he yet had infinite patience in mastering subjects in themselves distasteful to him. Great as was his productiveness he did not write easily, and all his work represents painstaking revision and correction. Modestly conscious of his own powers, it is not strange that he was disappointed at the comparatively small recognition with which his philosophical system had met. Content with no subject until he had brought it into some sort of unity with his conception of the whole, he could ill understand the ability of many men to hold confused and inconsequent views. He was a true son of his people in his passion for nature, and his deep sense of man's close and intimate relaion to it. But he had his limitations. He was distinctly the nature-lover as distinguished from the lover of history and the past. Rome

> "A city was to him
> And it was nothing more,"

and he walked its streets far more interested in his own thoughts than anything outside them. For general social life and amusement he cared not at all. His one regular diversion was a weekly chess club, whose meeting he never missed, and he always enjoyed the society of intimate and congenial friends, and was often stimulated by them to discussion and argument, in which he took a keen delight. It is still too early to assign him his final place in the intellectual history of his country, but he is a connecting link between the past and present, and represents that scientific insterest in the physical side of mental phenomena which marks a new era in German philosophy. His great aim was to bring about the alliance of speculation and research, and in this good cause he fought loyally to the end. C. H. S.

Ueber die Gleichzeitigkeit und Ungleichzeitigkeit von Bewegungen." O. KÜLPE. Phil. Studien, 1891, VI, p. 514, and 1892, VII, p. 124.

Dr. Külpe discusses some experiments in which it was sought to raise both hands simultaneously. The subjects reached in four ways: ordinary muscular and sensorial reaction, and two unstimulated kinds, one with attention previously concentrated on the movement, as in muscular reaction, and one without special preparation. A bell furnished the stimulus (where necessary) in the first set; only such results were admitted as appeared simultaneous to the subjects. The figures given represent the deviations from simultaneity. In the majority of cases the left hand reacted first. The several subjects and kinds of reaction give widely varying results, but in general the figures for muscular and sensorial show the same relations as in simple reaction, and so do the unstimulated reaction —the average of the so-called "premeditated voluntary reaction" being slightly larger than that of the muscular, and that of the "unpremeditated" rather larger than that of the sensorial.

Looking at reaction from the psychological side, two laws of the association affect its rapidity. First, a period of strained attention

gives rise to a displeasurable feeling, which hastens transition. Second, the more closely states are related the quicker the transition. The coördinations or reaction are not natural, but in muscular reaction the *idea* of the coördination forms a natural connecting link. As to the former factor, in muscular reaction the attention is strained, hence the passage to movement is more rapid than in sensorial. In reacting with two hands, the deviation from simultaneity may be taken absolutely, or distinguished by plus and minus signs (*i. e.*, relatively).

To determine the causes for the priority of one hand, further experiments were made. First, with other kinds of stimulus: a hammer, light, and electrical stimulation of the skin. This produced no noticeable change of result. Next, the fingers of one or both hands were made anesthetic by ether or ice, thus removing the sensation of touching the reaction-key. This lowered the mean variation perceptibly, without altering the differences. In other experiments the efficiency of the muscles on both sides was diminished by a strong electric current; this increased decidedly the average priority of the left hand. To test the influence of *attention*, one hand was consciously singled out and attention directed more closely to its movement. Comparing these results with the others, there is a marked increase of preference for the left, when that hand is designated, and generally (but less noticeable) for the right, when it is designated. In some final experiments the muscles of one arm were fatigued by tension; the effect was to *delay* the action of that hand, especially in case of the right.

Dr. Külpe argues that, since the right hand is more accustomed to grasping and pressing than the left, it would usually press harder on the reaction-key, and (greater fatigue ensuing) would react more slowly than the left. But the left hand is more dependent; hence special attention to the right benefits it less than attention to the left. Chance directing the attention may therefore explain the variations in the earlier experiments. The larger variations in sensorial reaction may be because the preconceived idea of the movement represents only the transition from apperception to movement, while in muscular it includes the entire preparation for the movement, leaving less open to chance variation. In anesthesia the idea of the coming movement is not in conflict with the sensation of the present position of the hand. With the latter present, more or less of a counter-effort is required to prevent the movement from immediate accomplishment, and this increases the attention and fatigue.

The influence of this conflict between expectation and tension on the course and duration of reaction is to be investigated in another paper.

HOWARD C. WARREN.

The subliminal consciousness. MEYERS. Proceedings of the Society for Psychical Research, 1892, Feb. 1.

Holding that automatic writing, trans-utterance, automatic picture-drawing, crystal vision, monitory voices, hallucinations and kindred phenomena are in no sense abnormal, the author proposes a hypothesis for "the provisional coördination of all these subliminal phenomena," which "does not need constant stretching to meet the exigencies of each fresh case." Assuming that we must be in some sense conscious of any sensation or volition which we can afterwards recall, it is evident that multitudes of things have entered into consciousness without our knowledge. "Our habitual or empirical consciousness" is a selection of such parts of the whole